



Grand Junction, Colorado, Disposal Site

Long-Term Surveillance and Maintenance Program



U.S. Department of Energy
Grand Junction Office

FACT SHEET

The Grand Junction Office has provided cost-effective and efficient stewardship for more than 10 years

Overview

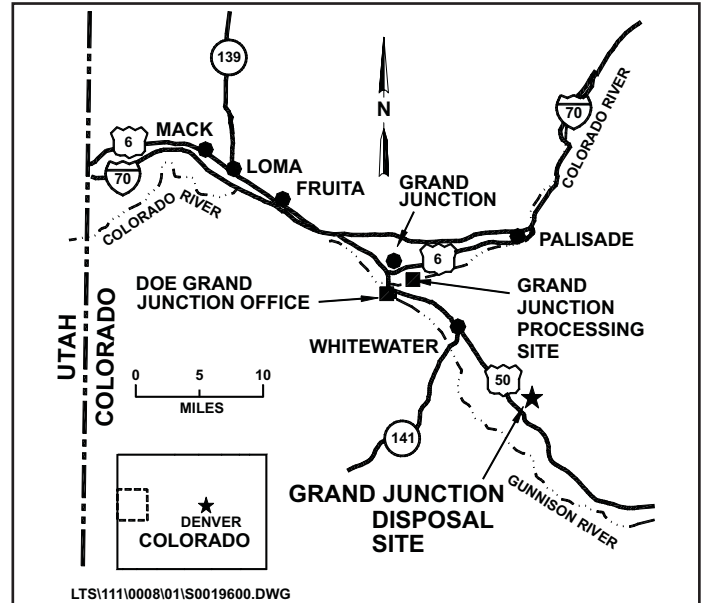
Uranium ore was processed at the Climax millsite at Grand Junction, Colorado, between 1951 and 1970. The milling operations created process-related waste and tailings, a sandlike material containing radioactive materials and other contaminants. The tailings were an ideal and inexpensive construction material suitable for concrete, mortar, and fill. Accordingly, the tailings were widely used in the Grand Junction area for these purposes. The U.S. Department of Energy (DOE) encapsulated the tailings and other contaminated materials from the millsite and more than 4,000 vicinity properties in the Grand Junction area in an engineered disposal cell. Part of the disposal cell was completed in 1994; the remainder of the cell remains open until it is filled or until 2023, whichever comes first, to receive additional contaminated materials.

The U.S. Nuclear Regulatory Commission has conditionally approved the closed portion of the disposal cell, but the Grand Junction site will not be fully licensed until the open part of the disposal cell is closed. Until that time, the Long-Term Surveillance and Maintenance (LTSM) Program will be responsible for the closed part of the cell under provisions of the long-term surveillance plan (LTSP) for the Grand Junction site. The open part of the cell will be operated by the Long-Term Radon Management (LTRM) Project, which is part of the LTSM Program.

Under provisions of the LTSP, the LTSM Program conducts annual inspections of the site and maintains the site, as necessary. The open cell is managed according to an LTRM operations plan. Groundwater monitoring is not required at the Grand Junction site but is being performed as a best management practice.

DOE established the LTSM Program in 1988 to provide stewardship of disposal cells that contain low-level radioactive material. The mission of the LTSM Program is to ensure that the disposal cells continue to prevent release of contaminated materials to the environment. This material will remain potentially hazardous for thousands of years. As long as the cells function as designed, risks to human health and the environment are negligible.

The LTSM Program maintains the safety and integrity of the disposal cell through periodic monitoring,



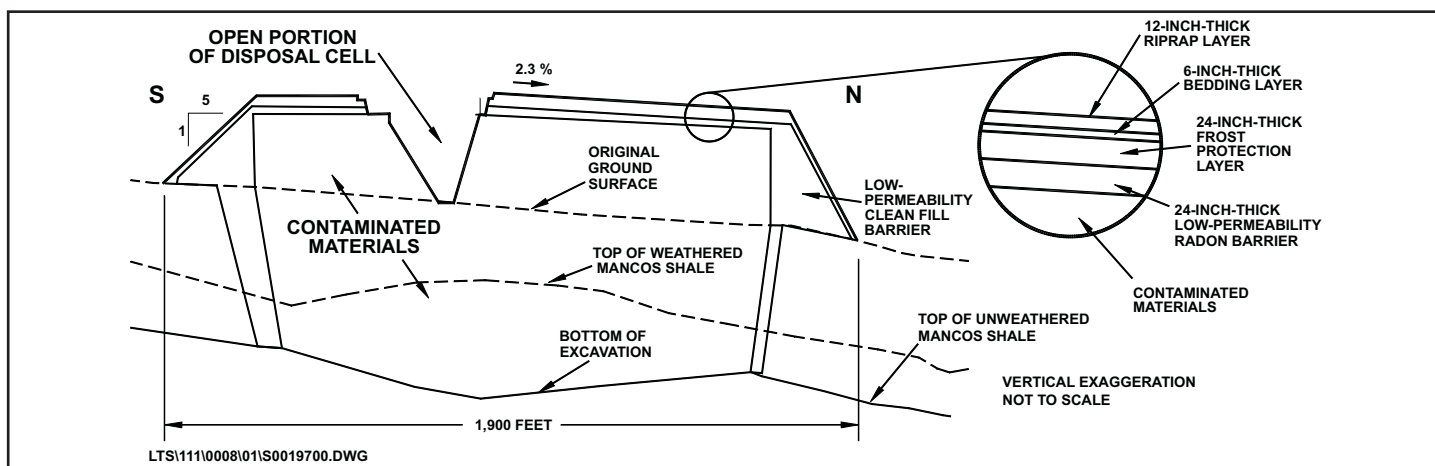
inspections, and maintenance; serves as a point of contact for stakeholders; and maintains an information repository at the DOE Grand Junction Office for all sites in the LTSM Program.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act in 1978 (Public Law 95-604) that specified remedial action for 24 inactive millsites where uranium was produced for the Federal Government. DOE remediated these sites under the Uranium Mill Tailings Remedial Action Project and encapsulated the radioactive material in U.S. Nuclear Regulatory Commission-approved disposal cells. Cleanup standards were promulgated by the U.S. Environmental Protection Agency in Title 40 *Code of Federal Regulations* (CFR) Part 192. The U.S. Nuclear Regulatory Commission license for long-term custody and care will be issued in accordance with 10 CFR 40.

Grand Junction Disposal Site

The Grand Junction Disposal Site is located in Mesa County, Colorado, 18 miles south of Grand Junction. U.S. Bureau of Land Management property surrounding the 360-acre site is used seasonally for grazing. The nearest residence is approximately 2 miles north of the site.



South-North Cross Section of Grand Junction Disposal Cell

The 60-acre cell is located on a westward-sloping pediment surface at an elevation of about 5,200 feet. The surface consists of about 40 feet of alluvium, colluvium, and terrace gravels underlain by a 700-foot-thick sequence of Mancos Shale. Groundwater beneath the disposal site area occurs transiently in thin, isolated paleochannels within the lower portion of the alluvium and in fractures in the Mancos Shale. Groundwater in the Mancos Shale is in discontinuous zones that yield less than 150 gallons per day. In general, water quality is good in the alluvium and poor in the Mancos Shale.

DOE chose the Grand Junction Disposal Site location on the basis of remoteness, lack of significant groundwater, and the thick impermeable layer of Mancos Shale underlying the site.

Cell Design

The disposal cell is 1,700 feet by 2,300 feet and contains 4.03 million cubic yards of tailings and vicinity property materials. Tailings were placed in compacted layers to a height 30 feet above the original ground surface. The cell is covered with a multicomponent cap constructed of materials removed from the excavation. Radon emissions and precipitation infiltration are minimized by the low-permeability radon barrier. Three additional layers—a soil frost barrier, a sand-and-gravel bedding layer, and a rock (riprap) layer—protect the radon barrier from the weather and plant and animal intrusion. The cell design promotes rapid runoff of precipitation to minimize leachate. Precipitation runoff is collected and directed away from the disposal cell by riprap-armored aprons that surround the cell.

Disposal Activities

The open portion of the disposal cell will accept contaminated materials until 2023 or until the design capacity is reached. These will include tailings and contaminated materials removed from underground utility lines beneath Grand Junction streets; the

Monticello, Utah, site; and other sites; and sludge from groundwater treatment plants at the Tuba City, Arizona, and Monticello, Utah, sites. The cell will be open for short durations to accept contaminated materials.

The open portion of the disposal cell is located at the crest of the cell and can accommodate as much as 250,000 cubic yards of additional material. This open cell measures 1,200 feet by 750 feet and is approximately 30 feet in depth.

LTSM Program Activities

In addition to operating the open cell every summer, the LTSM Program conducts annual inspections of the closed portion of the site and weekly inspections of the open portion of the disposal cell. Inspectors evaluate the condition of the disposal site and determine if maintenance is necessary to protect the integrity of the site. Water levels in two monitor wells located in paleochannels near the cell and a monitor well within the cell will be monitored continually. Groundwater in these three wells is monitored to detect seepage from the cell should seepage occur.

The disposal cell at Grand Junction is designed and constructed to last for 200 to 1,000 years. However, the general license has no expiration date, and DOE understands that its responsibility for the safety and integrity of the Grand Junction site will last indefinitely.

Contacts

For more information about the LTSM Program or about the Grand Junction Disposal Site, contact

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or visit the Internet site at
<http://www.gjo.doe.gov/programs/ltsm>